Gefen TOOLBOX

1:8 Splitter for HDMI

GTB-MHDMI1.3-148

www.gefentoolbox.com

ASKING FOR ASSISTANCE

Technical Support:
Telephone (818) 772-9100
(800) 545-6900

Fax (818) 772-9120

Technical Support Hours:
8:00 AM to 5:00 PM Monday thru Friday PST

Write To:

Gefen, LLC
c/o Customer Service
20600 Nordhoff St
Chatsworth, CA 91311

www.gefentoolbox.com
support@gefen.com

Notice

Gefen, LLC reserves the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

Gefen ToolBox 1:8 Splitter for HDMI 1.3 is a trademark of Gefen, LLC

© 2010 Gefen, LLC, All Rights Reserved

All trademarks are the property of their respective owners.

Rev A2
1.5L

CONTENTS

1 Introduction

2 Operation Notes

3 Features

4 Panel Layout

5 Panel Descriptions

6 Connecting And Operating The Gefen ToolBox 1:8 Splitter For HDMI 1.3

7 EDID Management

- 7 EDID Modes
- 8 EDID Mode Selection
- 9 Audio Channel Selection

10 Internal EDID Specifications

11 Wall Mounting Instructions

12 Specifications

13 Warranty

INTRODUCTION

Congratulations on your purchase of the Gefen ToolBox 1:8 Splitter for HDMI 1.3. Your complete satisfaction is very important to us.

About Gefen

We specialize in total integration for your home theater, while also focusing on going above and beyond customer expectations to ensure you get the most from your hardware. We invite you to explore our distinct product line. Please visit http://www.gefen.com for the latest offerings in High-Definition signal solutions or call us between the hours of 8:00 am and 5:00 pm Monday-Friday, Pacific Standard Time for assistance with your A/V needs. We'll be happy to assist you.

Why Gefen ToolBox?

The Gefen Toolbox line offers portable and effective solutions for common A/V system integration setups using HDMI connectivity. Gefen ToolBox products are wall-mountable and compact. Gefen ToolBox products are easily transported in the field and are ready for immediate and hassle-free deployment in working environments behind the scenes. They come finished in a glossy color to blend in with most indoor color schemes.

The Gefen ToolBox 1:8 Splitter for HDMI 1.3

The 1:8 Splitter for HDMI 1.3 sends one digital HDMI A/V source to 4 HDMI-compliant displays at the same time. It supports all HDMI equipment such as Blu-ray and DVD players, satellite set-top boxes, and all HDMI displays. Features include transmission of high-def deep color video resolutions up to 1080p@60 Hz combined with advanced lossless digital audio formats for pristine sound reproduction.

How It Works

Connect your HDMI A/V source to the Splitter's input using the supplied HDMI cable. Connect up to eight (8) HDMI-compliant displays to the Splitter's eight (8) HDMI outputs. Apply power to sources and displays. The source signal will now be seen on all four displays at the same time.

READ THESE NOTES BEFORE INSTALLING OR OPERATING THE 1:8 SPLITTER FOR HDMI 1.3

- EDID contains the A/V capabilities of a display device in regards to video resolutions and audio formats supported. This information is used by the source device to determine the format of the A/V signal it outputs. The Gefen ToolBox 1:8 Splitter for HDMI 1.3 has advanced EDID management features to ensure complete compatibility with all sources and display devices. Please see pages 7-10 for more details.

- The Gefen ToolBox 1:8 Splitter for HDMI 1.3 detects the presence of Deep Color automatically and disables Deep Color EDID features across all outputs if any connected device or display is not capable of Deep Color. This automatic behavior insures compatibility among all output devices in a mixed-device environment. It cannot be disabled.

FEATURES

HDMI 1.3 Features

- 225 MHz (up to 12 bit YUV 444 @ 1080p)
- Deep Color
- Dolby TrueHD & DTS-HD Master Audio
- CEC Pass-through on Output 1
- Lip-Sync Pass-through

General Features

- Simultaneously displays a single HDMI 1.3 source on up to 8 HDMI-compliant monitors without signal loss
- Maintains high resolution video - beautiful, sharp HDTV resolutions up to 1080p@60 Hz and 1920x1200@60 Hz
- EDID Management for rapid, harmonious integration of sources and display devices
- Supports modern advanced digital audio formats including LPCM 7.1 audio, Dolby Digital Plus, Dolby TrueHD, and DTS-HD Master Audio
- Supports the use of DVI sources and DVI displays with an HDMI-to-DVI converter cable or adapter
- Input and output cables up to 10 meters in length can be used when using 8-bit or 12-bit color. Extension distance is dependent upon the quality of the cables being used.
- HDMI and HDCP compliant

Package Includes

(1) Gefen ToolBox 1:8 Splitter for HDMI 1.3
(1) 6-foot Locking HDMI cable (M-M)
(1) 5V DC Power Supply
(1) User's Manual

PANEL LAYOUT

PANEL DESCRIPTIONS

1 HDMI Output Ports 1-8

Connect HDMI-compliant display device(s) to any of these output ports.

2 Audio Channel Selection Switch

This switch will modify the EDID to specify the number of supported audio channels when using the INTERNAL EDID mode. This setting will not affect the EDID information when using the EXTERNAL EDID mode.

3 EDID Mode Selection Switch

This switch will control the location of the EDID that will be sent to the source device. The options are EXTERNAL and INTERNAL. Please see pages 7-10 for more information.

4 HDMI Input Port

Connect an HDMI source device to this input port. The signal from this port will be replicated to all HDMI output ports. Please see the Features section on page 3 for supported HDMI 1.3 features.

5 5V DC Power Input Receptacle

Connect the included 5V DC power supply between this receptacle and a power source. Only use the power supply supplied with this unit. Screw the locking power tip into the socket on the Splitter until it fits snugly.

6 Power Indicator LED

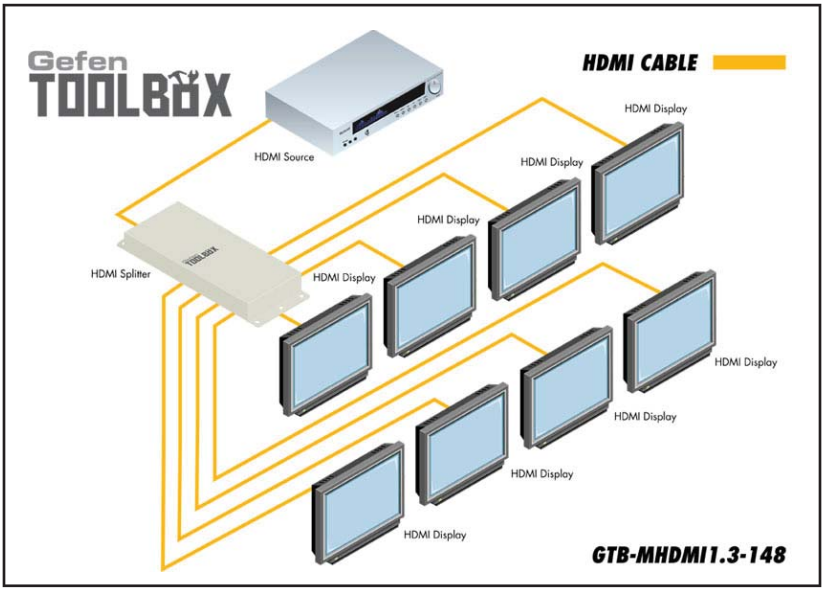
This LED will become active once the included 5V DC power supply has been properly connected to the unit and a power source.

How to Connect the 1:8 Splitter for HDMI 1.3

1. Use an HDMI cable to connect the source device to the HDMI input port of the 1:8 Splitter for HDMI 1.3.
2. Use additional HDMI cables to connect up to 8 HDMI-compliant displays to the output ports on the 1:8 Switcher for HDMI 1.3.
3. Connect the included 5V DC power supply to the power receptacle on the Splitter.
4. Connect the other end of the power supply to an available power outlet.

How to Operate the 1:8 Splitter for HDMI 1.3

The 1:8 Splitter for HDMI 1.3 does not require any configuration to begin splitting the incoming HDMI input signal. However, depending on the features required by the user, the EDID Mode and Audio Channel Selection switches may need to be adjusted. Please see the following section for more information on the usage of these switches.



Wiring Diagram for the 1:8 Splitter for HDMI 1.3

EDID Modes

The 1:8 Splitter for HDMI 1.3 features automatic and manual EDID adjustments to maximize compatibility of all attached devices. First it is necessary to understand EDID and what it is used for.

EDID. What is it and what is it used for?

Under normal circumstances, analog (i.e. VGA computer) and digital (i.e. Blu-ray player) source devices will require information about a connected device/display to assess what resolutions and features are compatible. This required information is read from a standardized file called the EDID (Extended Display Information Data). Almost all types of output devices/displays (computer monitor, HDTV, A/V receiver) will carry and transmit its EDID to a connected source. The source will then read this EDID file and make the necessary adjustments to ensure that only compatible features are released to the device/display. A source can only accept and read one EDID from a connected device/display. Likewise, the source can only output one resolution and audio type for a connected device/display to use.

Why is EDID so important with the 1:8 Splitter for HDMI 1.3?

The Gefen ToolBox 1:8 Splitter for HDMI 1.3 is a complex piece of technology that replicates a single input signal to multiple outputs. The single source device will require one EDID to read. Multiple devices/displays can be connected to the outputs on the 1:8 Splitter for HDMI 1.3, each with its own EDID, so management of this information is key to ensure that maximum compatibility is maintained between all devices.

What options do I have to manage the EDID in the 1:8 Splitter for HDMI 1.3?

It is important to understand that the EDID contains much more than just listings of supported resolutions and audio formats. However, resolutions and audio formats are the two key types of information that a user will need to understand how to use these EDID management functions.

Common problems that a user may encounter while using a splitter can be:

1. Video may not be visible on all output devices/displays.

2. Audio may not be heard on all output devices/displays.

These symptoms usually arise from video resolution / audio format incompatibilities between the devices / displays connected to the splitter.

The1:8 Splitter for HDMI 1.3 can use one of two methods to acquire and retransmit an EDID to the A/V source device telling it about the kind of output devices that are connected to the Splitter, thus curing the incompatibility.

EDID Mode Selection

1. **EXTERNAL MODE**:

   To use this mode, set the EDID Mode Switch on the front panel to the **EXT** position. In External EDID mode, the Splitter directly retrieves EDID data from each connected A/V display device and builds a new EDID created from the highest common video resolution that all display devices can use together and the highest audio capability. This new EDID is sent back to the source device.

   If sufficient EDID data is unavailable from external display devices or EDID-related problems are encountered, Internal EDID Mode should be used to provide a single compatible EDID for all connected devices.

2. **INTERNAL MODE**:

   To use this mode, set the EDID Mode Switch on the front panel to the **INT** position. This mode will use a preset EDID that is stored in the 1:8 Splitter for HDMI 1.3 from the factory. This pre-programmed standard EDID data structure is compatible with most A/V display devices. All resolutions and audio formats specified in this EDID will be passed to the source device. For a complete listing of the resolutions and audio formats listed in this EDID please see page 10.

   NOTE: HDMI capable devices/displays connected to the output ports **MUST** be compatible with at least one resolution/audio format specified in this EDID. It is recommended to set, on the source device, a common resolution and audio format shared by all attached devices/displays. This is to ensure a compatible signal is output to all connected devices/displays.

Audio Channel Selection

The 1:8 Splitter for HDMI 1.3 features a switch that will modify the supported audio formats listed in the pre-programmed EDID. This feature is useful for limiting the output of the source device to either 2 or multi-channel audio formats.

NOTE: This selector switch will only affect the pre-programmed EDID in the INTERNAL (INT) EDID Mode.

The 1:8 Splitter for HDMI 1.3 can use either of the following settings for audio format support:

1. **2 Channel:** This setting will limit the audio formats listed in the pre-programmed EDID to 2 channel LPCM. For a full listing of the audio formats in this mode please see page 10.

   To use this mode, set the Audio Selection Switch on the front panel to the **2 CH** position.

   This mode is useful in scenarios where all output devices/displays are HDTV monitors that only support 2 channel LPCM. This setting will ensure that all connected devices will receive and produce sound.

2. **Multi-Channel:** This setting will enable all common audio formats in the pre-programmed EDID. For a full listing of the audio formats in this mode please see page 10.

   To use this mode, set the Audio Selection Switch on the front panel to the **Multi CH** position.

   This mode is useful in scenarios where the output devices/displays are varying devices (i.e. HDTV display and audio receivers). Please note that sound may not be heard from all output devices/displays if a shared common audio format is not used by the source device.

INTERNAL EDID SPECIFICATIONS

Below are the settings programmed into the built-in Internal EDID data structure:

Video Data Block	Audio Data Block	xvYCC
1080p@60Hz 1080p@50Hz 1080i@60Hz (native) 1080i@50Hz	2-channel: LPCM 2CH Multi-channel: LPCM 2CH LPCM 8CH AC-3 6CH DTS 7CH Dolby Digital+ 8CH Dolby TrueHD 8CH DTS-HD 8CH MAT(MLP) 8CH	xvYCC 709 xvYCC 601

WALL MOUNTING INSTRUCTIONS

The Gefen Toolbox 1:8 Splitter for HDMI 1.3 should be mounted vertically in a wall or cabinet with wood/drywall screws as shown in the diagram above. There should be an inch or two of clearance between the edges of the unit and any walls or vertical surfaces to allow for enough clearance for insertion and retraction of cables at the HDMI connectors.

For installation on a drywall surface, use a #6 drywall screw. It is recommended when installing on a drywall surface that studs be used to secure the Splitter should undue stress be applied when connecting and disconnecting HDMI cables.

SPECIFICATIONS

Single Link Bandwidth ..... 225 MHz

Pixel Clock / Speed ..... 165 MHz

Maximum Video Resolution ..... 1080p@60Hz, 1920x1200@60Hz with 12-bit Deep Color

Input Video Signal ..... 1.2 volts p-p

Input DDC Signal ..... 5 volts p-p (TTL)

HDMI Connectors..... type A 19 pin female; (1) input, (8) output

LED Indicator: (Power)..... (1) Red

EDID Mode Switches (2)..... Audio Channels, INT/EXT Mode

Power Supply ..... 5V DC

Power Consumption ..... 10 Watts (max)

Dimensions ..... 3”W x 10½”H x ¾”D

Operating Temperature ..... 0-40 degrees C

Supported: .....Input Equalizer, Input Re-Clocking

Compliancy.....US/EU Standards, HDMI 1.3, HDMI 1.2, HDCP 1.1, DVI 1.0

Certifications.....UL (power supply), RoHS, CE

Shipping Weight ..... 3.0 lbs.

WARRANTY

Gefen warrants the equipment it manufactures to be free from defects in material and workmanship.

If equipment fails because of such defects and Gefen is notified within two (2) years from the date of shipment, Gefen will, at its option, repair or replace the equipment, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications. Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of reshipment to the Buyer.

This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.

1. Proof of sale may be required in order to claim warranty.

2. Customers outside the US are responsible for shipping charges to and from Gefen.

3. Copper cables are limited to a 30 day warranty and cables must be in their original condition.

The information in this manual has been carefully checked and is believed to be accurate. However, Gefen assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will Gefen be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding the features and specifications is subject to change without notice.

For the latest warranty coverage information, please visit Gefen's Warranty web page at http://www.gefen.com/kvm/aboutus/warranty.jsp

PRODUCT REGISTRATION

Please register your product online by visiting Gefen's web site at http://www.gefen.com/kvm/Registry/Registration.jsp

ma-MHDMI1.3-148

Rev A2
1.5L

20600 Nordhoff St., Chatsworth CA 91311
1-800-545-6900 818-772-9100 fax: 818-772-9120
www.gefentoolbox.com support@gefentoolbox.com